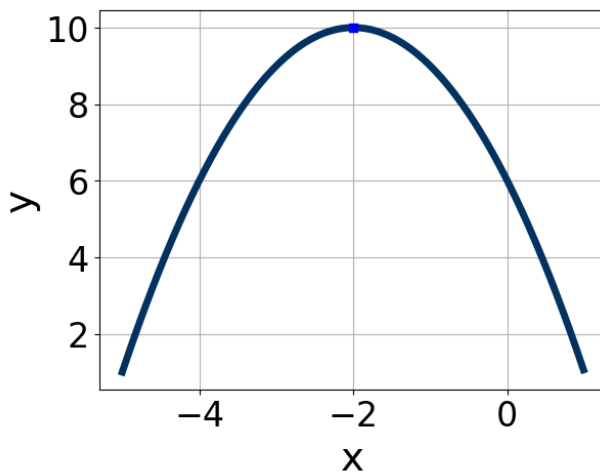


1. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b , and c belong to.



- A. $a \in [-2, -0.8]$, $b \in [1, 6]$, and $c \in [-14, -10]$
 B. $a \in [-2, -0.8]$, $b \in [-5, -3]$, and $c \in [5, 9]$
 C. $a \in [-2, -0.8]$, $b \in [1, 6]$, and $c \in [5, 9]$
 D. $a \in [-0.3, 1.8]$, $b \in [-5, -3]$, and $c \in [11, 15]$
 E. $a \in [-0.3, 1.8]$, $b \in [1, 6]$, and $c \in [11, 15]$

2. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d)$; $b \leq d$.

$$54x^2 - 57x + 10$$

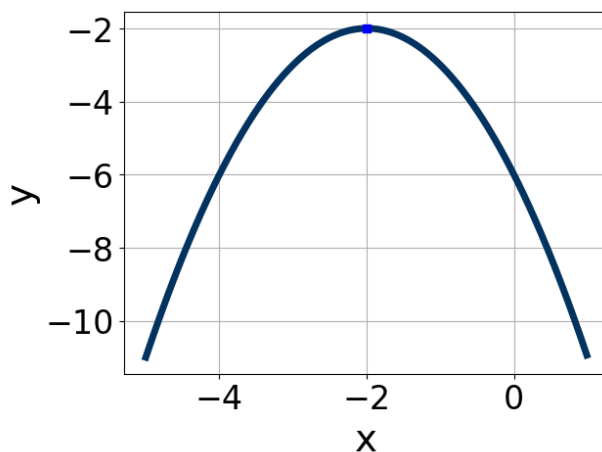
- A. $a \in [1.9, 3.1]$, $b \in [-6, -1]$, $c \in [25.3, 27.05]$, and $d \in [-7, 4]$
 B. $a \in [4.5, 6.5]$, $b \in [-6, -1]$, $c \in [7.67, 10.95]$, and $d \in [-7, 4]$
 C. $a \in [0.8, 1.2]$, $b \in [-48, -41]$, $c \in [0.42, 1.12]$, and $d \in [-18, -8]$
 D. $a \in [16.8, 19.6]$, $b \in [-6, -1]$, $c \in [2.05, 3.54]$, and $d \in [-7, 4]$
 E. None of the above.

3. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$10x^2 - 53x + 36 = 0$$

- A. $x_1 \in [0.18, 0.29]$ and $x_2 \in [12.91, 13.59]$
- B. $x_1 \in [0.58, 0.86]$ and $x_2 \in [4.23, 4.93]$
- C. $x_1 \in [7.8, 8.15]$ and $x_2 \in [44.43, 45.75]$
- D. $x_1 \in [0.85, 1.09]$ and $x_2 \in [3.99, 4.38]$
- E. $x_1 \in [1.49, 1.94]$ and $x_2 \in [2.18, 2.4]$

-
4. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a , b , and c belong to.



- A. $a \in [-1.8, -0.5]$, $b \in [4, 5]$, and $c \in [-4, -1]$
- B. $a \in [0.6, 2.4]$, $b \in [4, 5]$, and $c \in [-1, 3]$
- C. $a \in [0.6, 2.4]$, $b \in [-7, 1]$, and $c \in [-1, 3]$
- D. $a \in [-1.8, -0.5]$, $b \in [4, 5]$, and $c \in [-6, -4]$
- E. $a \in [-1.8, -0.5]$, $b \in [-7, 1]$, and $c \in [-6, -4]$

5. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$19x^2 - 13x - 8 = 0$$

- A. $x_1 \in [-1.16, -1]$ and $x_2 \in [0.32, 0.93]$
 - B. $x_1 \in [-0.86, 0.52]$ and $x_2 \in [0.53, 1.65]$
 - C. $x_1 \in [-8.02, -7.19]$ and $x_2 \in [20.31, 20.63]$
 - D. $x_1 \in [-27.65, -26.74]$ and $x_2 \in [27.96, 28.45]$
 - E. There are no Real solutions.
-

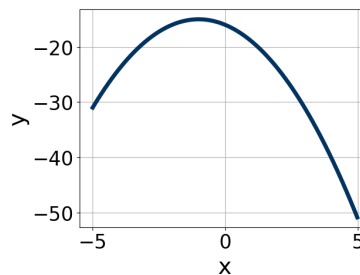
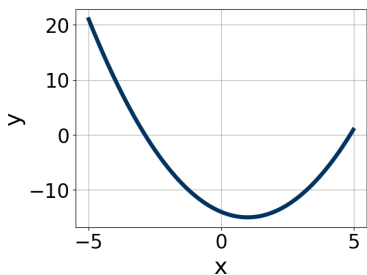
6. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

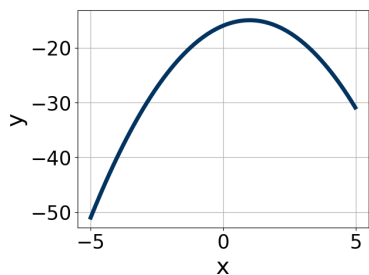
$$36x^2 + 60x + 25$$

- A. $a \in [1.41, 3.78]$, $b \in [5, 9]$, $c \in [10.94, 13.08]$, and $d \in [4, 14]$
 - B. $a \in [17.03, 18.26]$, $b \in [5, 9]$, $c \in [1.93, 2.21]$, and $d \in [4, 14]$
 - C. $a \in [4.42, 6.01]$, $b \in [5, 9]$, $c \in [5.68, 7.39]$, and $d \in [4, 14]$
 - D. $a \in [0.67, 1.6]$, $b \in [26, 37]$, $c \in [0.92, 1.75]$, and $d \in [29, 31]$
 - E. None of the above.
-

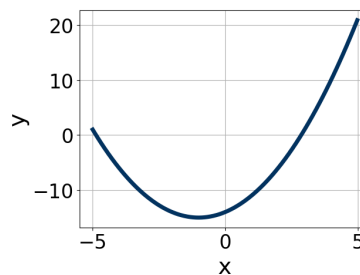
7. Graph the equation below.

$$f(x) = -(x + 1)^2 - 15$$





C.



D.

E. None of the above.

8. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$10x^2 + 12x - 5 = 0$$

- A. $x_1 \in [-20.1, -17.9]$ and $x_2 \in [16.1, 18.4]$
- B. $x_1 \in [-0.5, 1.9]$ and $x_2 \in [1.5, 2.7]$
- C. $x_1 \in [-17.2, -15.1]$ and $x_2 \in [2.7, 5.6]$
- D. $x_1 \in [-1.9, -0.4]$ and $x_2 \in [-0.6, 0.7]$
- E. There are no Real solutions.

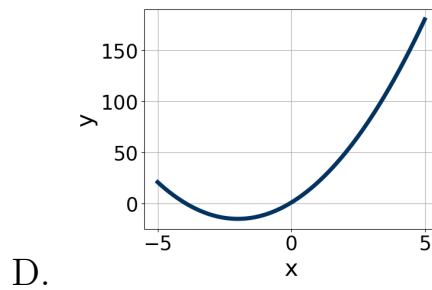
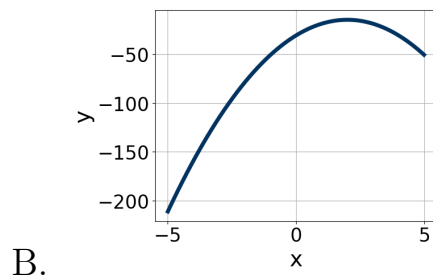
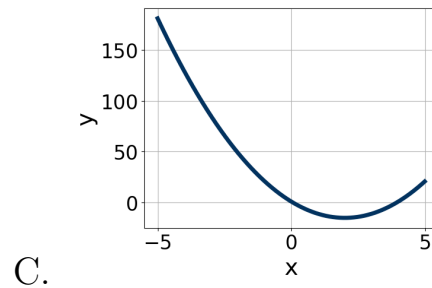
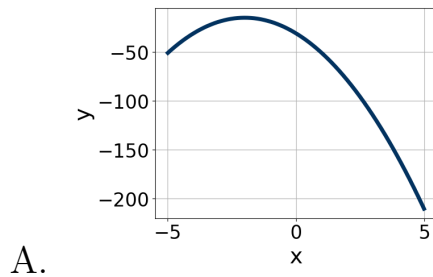
9. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 + 8x - 16 = 0$$

- A. $x_1 \in [-1.78, -0.94]$ and $x_2 \in [0.7, 1.03]$
- B. $x_1 \in [-4.45, -3.43]$ and $x_2 \in [0.25, 0.36]$
- C. $x_1 \in [-0.71, 0.61]$ and $x_2 \in [1.41, 1.67]$
- D. $x_1 \in [-20.84, -18.76]$ and $x_2 \in [11.92, 12.11]$
- E. $x_1 \in [-2.91, -1.6]$ and $x_2 \in [0.36, 0.47]$

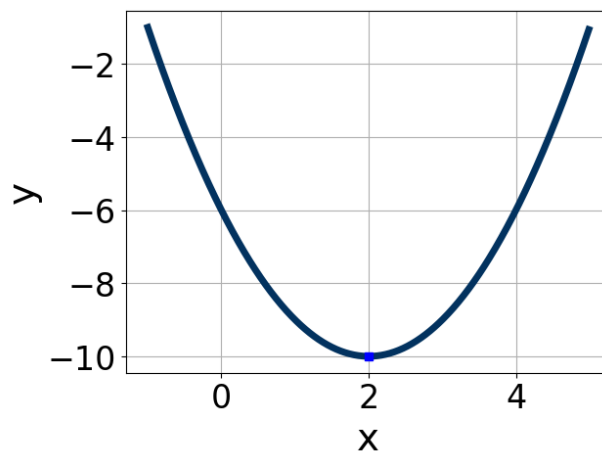
10. Graph the equation below.

$$f(x) = (x + 2)^2 - 15$$



E. None of the above.

11. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b , and c belong to.



- A. $a \in [-4, 0]$, $b \in [0, 7]$, and $c \in [-15, -12]$
 B. $a \in [0, 2]$, $b \in [-4, -2]$, and $c \in [-8, -4]$
 C. $a \in [0, 2]$, $b \in [0, 7]$, and $c \in [14, 17]$
 D. $a \in [-4, 0]$, $b \in [-4, -2]$, and $c \in [-15, -12]$

E. $a \in [0, 2]$, $b \in [0, 7]$, and $c \in [-8, -4]$

12. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$24x^2 + 38x + 15$$

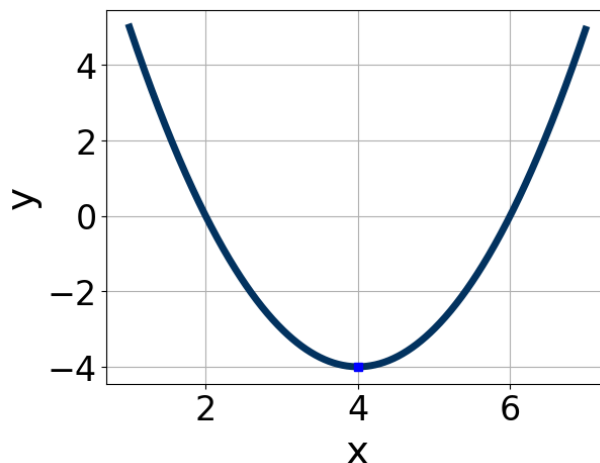
- A. $a \in [-1.31, 1.93]$, $b \in [13, 22]$, $c \in [-0.16, 1.34]$, and $d \in [19, 24]$
- B. $a \in [3.29, 4.95]$, $b \in [-3, 6]$, $c \in [5.47, 7.45]$, and $d \in [4, 12]$
- C. $a \in [6.96, 9.03]$, $b \in [-3, 6]$, $c \in [2.25, 4.92]$, and $d \in [4, 12]$
- D. $a \in [1.81, 2.88]$, $b \in [-3, 6]$, $c \in [10.17, 12.99]$, and $d \in [4, 12]$
- E. None of the above.
-

13. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 + 38x + 24 = 0$$

- A. $x_1 \in [-1.77, -0.84]$ and $x_2 \in [-1.32, -1.11]$
- B. $x_1 \in [-2.5, -2]$ and $x_2 \in [-0.68, -0.61]$
- C. $x_1 \in [-6.32, -5.86]$ and $x_2 \in [-0.46, -0.16]$
- D. $x_1 \in [-20.14, -19.4]$ and $x_2 \in [-18.02, -17.99]$
- E. $x_1 \in [-2.75, -2.44]$ and $x_2 \in [-0.62, -0.44]$
-

14. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b , and c belong to.



- A. $a \in [0, 2]$, $b \in [8, 9]$, and $c \in [12, 15]$
 B. $a \in [0, 2]$, $b \in [-12, -5]$, and $c \in [12, 15]$
 C. $a \in [-2, 0]$, $b \in [-12, -5]$, and $c \in [-22, -18]$
 D. $a \in [0, 2]$, $b \in [8, 9]$, and $c \in [20, 22]$
 E. $a \in [-2, 0]$, $b \in [8, 9]$, and $c \in [-22, -18]$

15. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$20x^2 - 7x - 2 = 0$$

- A. $x_1 \in [-0.96, -0.33]$ and $x_2 \in [0, 0.5]$
 B. $x_1 \in [-0.37, -0.04]$ and $x_2 \in [0.2, 1.1]$
 C. $x_1 \in [-3.87, -3.4]$ and $x_2 \in [8.8, 11.1]$
 D. $x_1 \in [-14.29, -14.01]$ and $x_2 \in [12.9, 15.8]$
 E. There are no Real solutions.

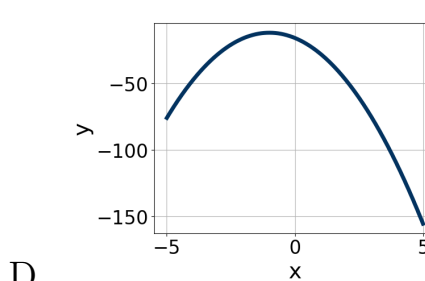
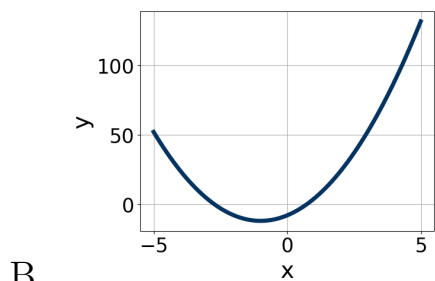
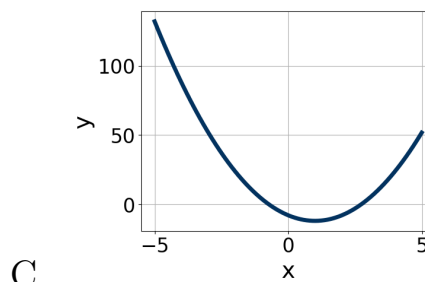
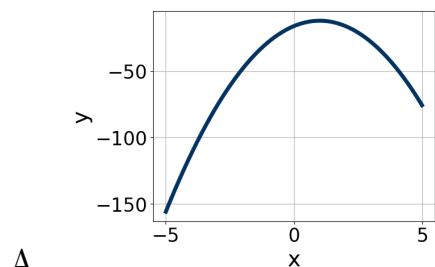
16. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d)$; $b \leq d$.

$$36x^2 - 60x + 25$$

- A. $a \in [11.1, 12.9]$, $b \in [-7, -4]$, $c \in [1.5, 3.3]$, and $d \in [-7, -3]$
- B. $a \in [-1.7, 2.2]$, $b \in [-32, -26]$, $c \in [-1.2, 2.6]$, and $d \in [-31, -27]$
- C. $a \in [5.9, 7.2]$, $b \in [-7, -4]$, $c \in [5.4, 9.9]$, and $d \in [-7, -3]$
- D. $a \in [2.4, 4.1]$, $b \in [-7, -4]$, $c \in [11.9, 15.7]$, and $d \in [-7, -3]$
- E. None of the above.
-

17. Graph the equation below.

$$f(x) = -(x + 1)^2 - 12$$



E. None of the above.

18. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$14x^2 - 11x - 7 = 0$$

- A. $x_1 \in [-2.5, -0.9]$ and $x_2 \in [-1.1, 0.9]$
- B. $x_1 \in [-5.9, -4.1]$ and $x_2 \in [15.9, 17.2]$

C. $x_1 \in [-22.7, -21.6]$ and $x_2 \in [22.9, 25.3]$

D. $x_1 \in [-1.2, 1.4]$ and $x_2 \in [1, 2.7]$

E. There are no Real solutions.

19. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 - 2x - 24 = 0$$

A. $x_1 \in [-6.19, -5.18]$ and $x_2 \in [0.25, 0.47]$

B. $x_1 \in [-0.78, -0.32]$ and $x_2 \in [2.24, 2.79]$

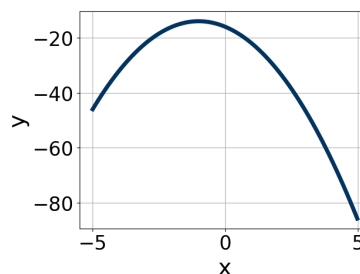
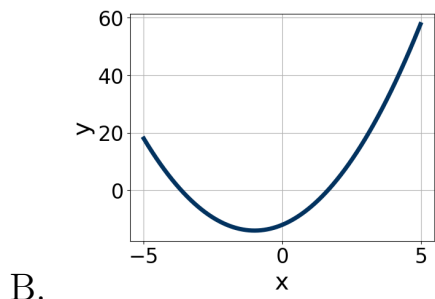
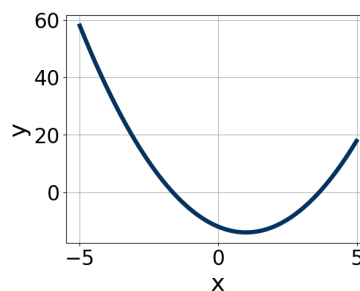
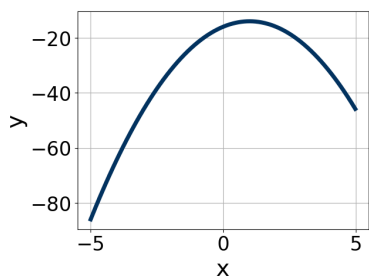
C. $x_1 \in [-1.35, -0.62]$ and $x_2 \in [0.91, 1.51]$

D. $x_1 \in [-2.54, -2.24]$ and $x_2 \in [0.48, 0.82]$

E. $x_1 \in [-18.5, -17.74]$ and $x_2 \in [19.91, 20.15]$

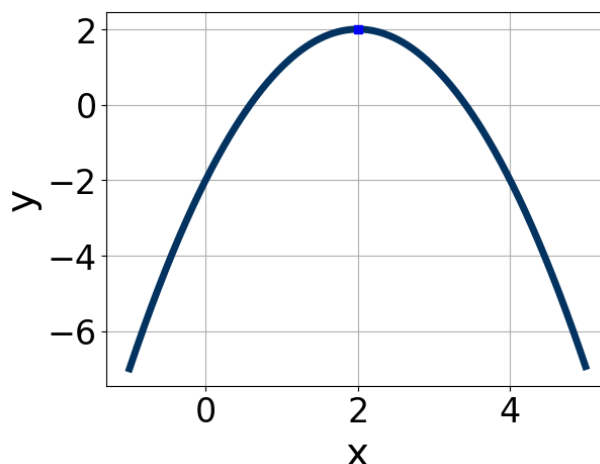
20. Graph the equation below.

$$f(x) = -(x + 1)^2 - 14$$



E. None of the above.

21. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a , b , and c belong to.



- A. $a \in [-1, 0]$, $b \in [-6, -3]$, and $c \in [-4.1, -1.3]$
B. $a \in [-1, 0]$, $b \in [3, 8]$, and $c \in [-4.1, -1.3]$
C. $a \in [-1, 0]$, $b \in [-6, -3]$, and $c \in [-6.8, -4.6]$
D. $a \in [0, 3]$, $b \in [3, 8]$, and $c \in [5.3, 6.8]$
E. $a \in [0, 3]$, $b \in [-6, -3]$, and $c \in [5.3, 6.8]$

22. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d)$; $b \leq d$.

$$81x^2 - 27x - 10$$

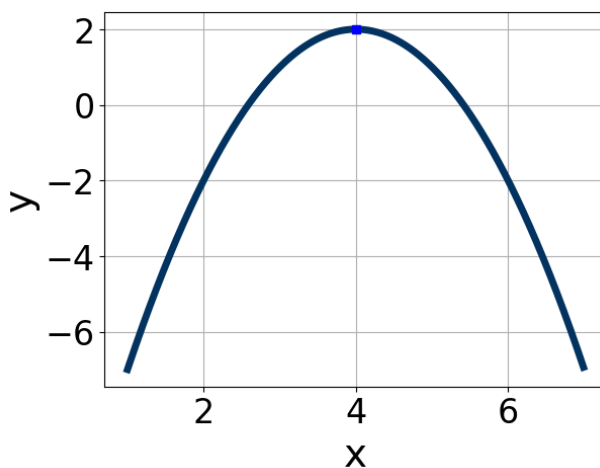
- A. $a \in [26.84, 27.15]$, $b \in [-8, -1]$, $c \in [1.2, 3.4]$, and $d \in [1, 4]$
B. $a \in [8.76, 9.27]$, $b \in [-8, -1]$, $c \in [6.6, 13.6]$, and $d \in [1, 4]$
C. $a \in [0.38, 1.02]$, $b \in [-48, -39]$, $c \in [0.8, 1.4]$, and $d \in [18, 23]$
D. $a \in [1.84, 3.62]$, $b \in [-8, -1]$, $c \in [24.7, 28]$, and $d \in [1, 4]$
E. None of the above.

23. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$10x^2 + 33x - 54 = 0$$

- A. $x_1 \in [-13.5, -12.5]$ and $x_2 \in [0.11, 0.52]$
 - B. $x_1 \in [-6.5, -3.5]$ and $x_2 \in [1.14, 1.33]$
 - C. $x_1 \in [-1.5, 4.5]$ and $x_2 \in [3.34, 3.77]$
 - D. $x_1 \in [-13, -8]$ and $x_2 \in [0.49, 0.76]$
 - E. $x_1 \in [-46, -44]$ and $x_2 \in [11.7, 12.23]$
-

24. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a , b , and c belong to.



- A. $a \in [0, 5]$, $b \in [-11, -7]$, and $c \in [17, 20]$
 - B. $a \in [-6, 0]$, $b \in [8, 10]$, and $c \in [-14, -12]$
 - C. $a \in [-6, 0]$, $b \in [-11, -7]$, and $c \in [-18, -16]$
 - D. $a \in [0, 5]$, $b \in [8, 10]$, and $c \in [17, 20]$
 - E. $a \in [-6, 0]$, $b \in [-11, -7]$, and $c \in [-14, -12]$
-

25. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-20x^2 - 13x + 3 = 0$$

- A. $x_1 \in [-1.46, -0.41]$ and $x_2 \in [-0.43, 0.72]$
- B. $x_1 \in [-4.25, -3.01]$ and $x_2 \in [15.81, 16.8]$
- C. $x_1 \in [-21.08, -20.1]$ and $x_2 \in [18.98, 20.41]$
- D. $x_1 \in [-0.59, -0.06]$ and $x_2 \in [0.27, 1.63]$
- E. There are no Real solutions.

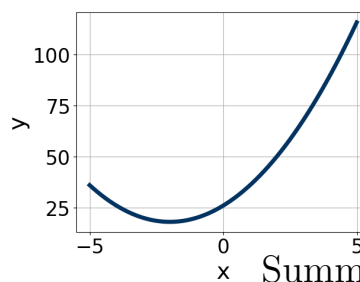
26. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$36x^2 - 60x + 25$$

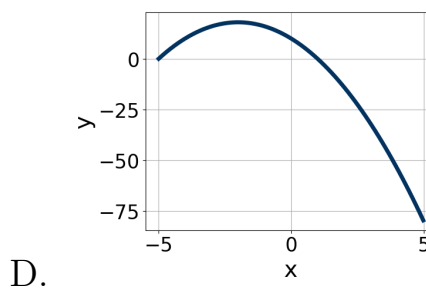
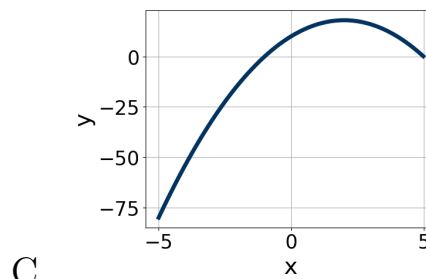
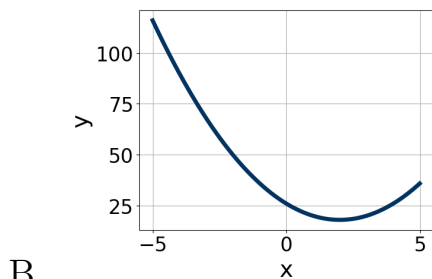
- A. $a \in [4.75, 6.2]$, $b \in [-8, -4]$, $c \in [5.94, 6.09]$, and $d \in [-7, -3]$
- B. $a \in [0.76, 1.49]$, $b \in [-34, -25]$, $c \in [0.54, 1.72]$, and $d \in [-33, -26]$
- C. $a \in [1.42, 2.16]$, $b \in [-8, -4]$, $c \in [17.56, 18.04]$, and $d \in [-7, -3]$
- D. $a \in [17.82, 18.42]$, $b \in [-8, -4]$, $c \in [1.88, 2.43]$, and $d \in [-7, -3]$
- E. None of the above.

27. Graph the equation below.

$$f(x) = -(x - 2)^2 + 18$$



A.



E. None of the above.

28. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$15x^2 + 8x - 5 = 0$$

- A. $x_1 \in [-1.09, -0.48]$ and $x_2 \in [0.05, 0.52]$
 B. $x_1 \in [-0.82, -0.3]$ and $x_2 \in [0.86, 1.21]$
 C. $x_1 \in [-20.11, -18.33]$ and $x_2 \in [18.23, 19.14]$
 D. $x_1 \in [-14.16, -13.12]$ and $x_2 \in [5.25, 5.92]$
 E. There are no Real solutions.

29. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

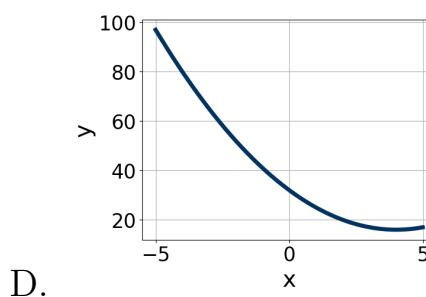
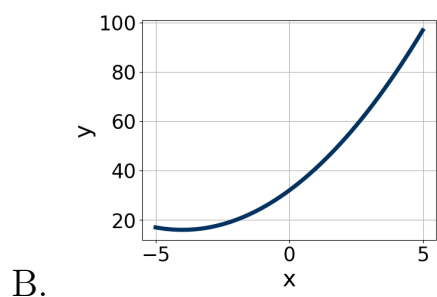
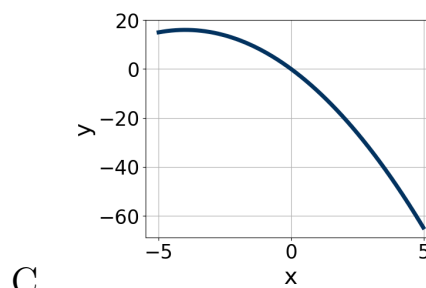
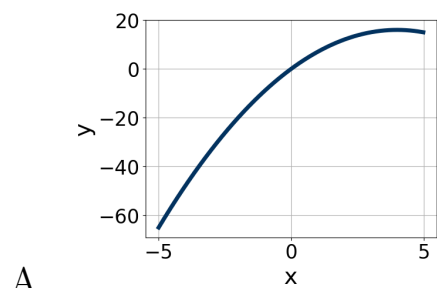
$$10x^2 + 57x + 54 = 0$$

- A. $x_1 \in [-9.26, -8.66]$ and $x_2 \in [-0.62, -0.53]$
 B. $x_1 \in [-4.2, -3.05]$ and $x_2 \in [-1.52, -1.39]$

- C. $x_1 \in [-14.3, -13.15]$ and $x_2 \in [-0.49, -0.39]$
- D. $x_1 \in [-4.83, -3.98]$ and $x_2 \in [-1.44, -1.11]$
- E. $x_1 \in [-45.02, -44.91]$ and $x_2 \in [-12.01, -11.94]$
-

30. Graph the equation below.

$$f(x) = -(x + 4)^2 + 16$$



E. None of the above.
